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Daniel E. Ovanezian
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025-1026

EXAMINER

CURTIS, CRAIG

ART UNIT PAPER NUMBER

2872

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/909,661

Applicant(s)

JACOBSON, ALEXANDER

Examiner

Craig Curtis

Art Unit

2872

aw

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/27/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- 1. Claims 23-27 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure that is not enabling.** The precise manner in which each of said plurality of at least four input light beams is spatially separated (using the common optical aperture), which is critical or essential to the practice of the invention, but has not been included in the claim(s), is not enabled by the disclosure.

See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

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Claim Rejections - 35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10 and 13-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayuki (JP-05297323) in view of Kaiser (US 4,701,012).

With regard to claim 1, Takayuki discloses the invention as claimed—[a]n apparatus, comprising:

a plurality of ports (see Fig. 1) and a beamsplitter (id., 30, 31), the beamsplitter having a common optical aperture disposed on an outer surface area to simultaneously receive the light beams received from each of the plurality of collimating lenses (see Fig. 1)--**EXCEPT FOR** explicit teachings of the following additionally recited claim limitations: a housing having a plurality of ports, each of the plurality of ports coupled to a corresponding one of a plurality of at least four fibers; a plurality of collimating lenses disposed within said housing, each of the plurality of collimating lenses to receive a light beam from a corresponding port of the plurality of at least four ports.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the apparatus of Takayuki with a housing, such provisioning being notoriously

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old and well-known in the optical apparatus art, for at least the purpose of protecting said beamsplitter, said plurality of ports, and said plurality of collimating lenses, a said plurality of at least four fibers, each of said later teachings being disclosed by Kaiser (viz., collimating lenses 12-16; at least four fibers (24-28), for at least the purpose of efficiently guiding polarized light through said apparatus.

With regard to claim 2, the combination teaches wherein said beamsplitter comprises a prism. See Fig. 1 in Takayuki.

With regard to claim 3, as no criticality has been associated in the specification with said prism being rhombic, the cube prism disclosed by the combination (spec., Takayuki) is taken as being an art-recognized equivalent of such teaching.

With regard to claim 4, said beamsplitter of the combination (spec., Takayuki) comprises a single reflective polarizer plate (viz., 31).

With regard to claim 5, said beamsplitter of the combination further has an inner surface, and the light beams has (read: have) a P-polarized and a (read: an) S-polarized component, and wherein the beamsplitter has a coating (31) on the inner surface to separate the S-polarized and P-polarized components of the light beam into spatially separate beams (See Fig. 3A: S-polarized component 44; P-polarized component 45).

With regard to claims 6 -10, the combination further teaches wherein said plurality of ports comprises a first input port (see, e.g., 24 in Fig. 1 of Kaiser) and a second input port (id. @ 25), said

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plurality of collimating lenses comprising a first collimating lens and a second collimating lens (see Fig. 1 of Kaiser), and wherein the beamsplitter is coupled to receive a first light beam from the first collimating lens and a second light beam from the second collimating lens (see Fig. 1).

With regard to claim 13, said housing having a length of less than approximately 65 millimeters is, absent criticality being associated with same, taken to be an obvious design choice.

With regard to claim 14, as set forth above, said plurality of collimating lenses are GRIN lenses.

With regard to claim 15, housings constructed of aluminum are notoriously old and well-known in the optical art.

With regard to claim 16, assuming said housing to be constructed as a unitary piece from a block of common material (e.g., aluminum), said common optical aperture would necessarily be thermally matched.

With regard to claim 17, coating the outer surfaces of beamsplitters with anti-reflection coatings is notoriously old and well-known in the optical art.

With regard to claims 18-20, the combination discloses wherein the plurality of ports is arranged in a one-dimensional linear array (e.g., ports 24-28 in Kaiser), and since criticality has not been associated with regard to said plurality of ports being formed in a two-dimensional array or a two-dimensional array having a hexagonal pattern, such teachings are taken to be obvious, space-saving design choices.

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With regard to claim 21, prisms constructed from materials comprising birefringent crystal material is notoriously old and well-known in the polarization art.

3. With regard to claim 11, the combination discloses, as set forth above with respect to claim 10, the invention as claimed--**EXCEPT FOR** wherein said plurality of ports comprises third and fourth input ports, and wherein the beamsplitter is coupled to receive S-polarized light from the first and third input ports and P-polarized light from the second and fourth input ports, the beamsplitter to combine S-polarized light from the first input port with P-polarized light from the third input port, the beamsplitter to combine S-polarized light from the second input port with P-polarized light from the fourth input port.

The combination, however, does disclose first and second input ports, the S- & P-polarized components of light propagating therethrough/therefrom being combined (as depicted in Fig. 1 of Takayuki). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the apparatus of Soref such that it further comprise third and fourth input ports, and wherein said beamsplitter was coupled to receive S-polarized light from the first and third input ports and P-polarized light from the second and fourth input ports, the beamsplitter to combine S-polarized light from the first input port with P-polarized light from the third input port, the beamsplitter to combine S-polarized light from the second input port with P-polarized light from the fourth input port, such combination already being taught for light from

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existing first and second output and input ports, for at least the purpose of processing additional signals within said apparatus, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

With regard to claim 12, the propagation of light from each of the input ports is substantially parallel to each other (see light from each of ports in Figs. 1 of both Takayuki and Kaiser).

4. With regard to claims 22 and 23 Takayuki discloses the invention as claimed--**EXCEPT FOR** wherein said prism of said apparatus has a common optical aperture coupled to said plurality of GRIN lenses to receive light from each of said GRIN lenses, and wherein each of said plurality of input light beams be spatially separated using said common aperture.

However, Kaiser discloses a plurality of lenses (12-16), and it would have been obvious to one having ordinary skill in the art at the time the invention was made both to have modified the apparatus of Takayuki such that its prism have a common optical aperture coupled to said plurality of GRIN lenses (well known in the fiber-optic art) to receive light from each of said GRIN lenses as well as spatially separate each of the plurality of input light beams using the common optical aperture, for at least the purpose of processing additional signals within said apparatus, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

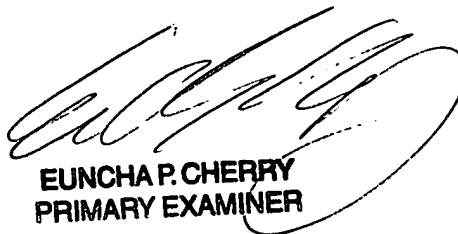
With regard to claims 24-31, please refer to comments set forth above with regard to like claim limitations previously recited.

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Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig Curtis, whose telephone number is (571) 272-2311. The facsimile phone number for Art Unit 2872 is (703) 872-9306.

Any inquiry of a general nature regarding to the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0956.



**EUNCHAR P. CHERRY
PRIMARY EXAMINER**

C.H.C.
Craig H. Curtis
Group Art Unit 2872
19 March 2004